

What is claimed is:

1. A circuit element comprising:

a first lead wire;

5 a second lead wire;

a third lead wire;

a first rectifying element and a second rectifying  
element which are connected in series in a forward direction  
between said first lead wire and said second lead wire; and

10 a load which is connected between said third lead wire  
and a connection point between said first rectifying element  
and said second rectifying element.

2. The circuit element according to claim 1, wherein

15  $V_1 \geq V_2$  over an entire operating period provided that  $V_1$   
represents an electric potential of said first lead wire and  
 $V_2$  represents an electric potential of said second lead  
wire.

20 3. The circuit element according to claim 2, wherein

in said operating period, a first period is set in which a  
current flows from said third lead wire to said load.

4. The circuit element according to claim 3, wherein

25  $V_1 < V_3$  in said first period provided that  $V_3$  represents an  
electric potential of said connection point.

5. The circuit element according to claim 2, wherein in said operating period, a second period is set in which a current flows from said second lead wire to said load.

5 6. The circuit element according to claim 5, wherein  $V2 > V3$  in said second period provided that  $V3$  represents an electric potential of said connection point.

10 7. The circuit element according to claim 2, wherein in said operating period, a third period is set in which a current does not flow in said load.

15 8. The circuit element according to claim 7, wherein  $V2 \leq V3 \leq V1$  in said third period provided that  $V3$  represents an electric potential of said connection point.

9. The circuit element according to claim 1, wherein said rectifying element is a diode.

20 10. The circuit element according to claim 9, wherein said diode is a thin film diode.

11. The circuit element according to claim 10, wherein said thin film diode is an MIM element.

25 12. A signal processing circuit comprising a circuit element and a control circuit,

wherein said circuit element includes:

a first lead wire;

a second lead wire;

a third lead wire;

5        a first rectifying element and a second rectifying  
element which are connected in series in a forward direction  
between said first lead wire and said second lead wire; and  
a load which is connected between said third lead wire  
and a connection point between said first rectifying element  
10 and said second rectifying element;

said control circuit controls at least an electric  
potential of said first lead wire and an electric potential  
of said second lead wire.

15        13. A control device comprising a plurality of circuit  
elements and a plurality of control circuits,

wherein each of said circuit elements includes:

a first lead wire;

a second lead wire;

20        a third lead wire;  
a first rectifying element and a second rectifying  
element which are connected in series in a forward direction  
between said first lead wire and said second lead wire; and  
a load which is connected between said third lead wire  
25 and a connection point between said first rectifying element  
and said second rectifying element;

each of said control circuits controls electric

potentials of said first lead wire, said second lead wire,  
and said third lead wire.

14. The control device according to claim 13, wherein  
5  $V1 \geq V2$  over an entire operating period provided that  $V1$   
represents said electric potential of said first lead wire  
and  $V2$  represents said electric potential of said second  
lead wire.

10 15. The control device according to claim 14, wherein  
a selection period and an unselection period are set for  
each of said circuit elements in said operating period; and

15  $V2 \leq V3 \leq V1$  in said unselection period provided that  
 $V3$  represents an electric potential of said connection  
point.

16. The control device according to claim 15, wherein  
 $V1 < V3$  or  $V2 > V3$  while each of said circuit elements is  
actually selected in said selection period.

20 17. The control device according to claim 16, wherein  
a reset period is set for each of said circuit elements in  
said operating period; and

25  $V1 < V3$  or  $V2 > V3$  while each of said circuit elements  
is actually reset in said reset period.

18. The control device according to claim 13, wherein

said load is a displacement control element which displaces a control objective based on a voltage applied to said load.

5           19. The control device according to claim 18, wherein said displacement control element includes a piezoelectric element.

10           20. The control device according to claim 18, wherein said displacement control element includes an inductor, and a displacement of said control objective is controlled by magnetization of said inductor which is controlled by a current flowing through said inductor depending on a voltage.

15           21. The control device according to claim 18, wherein said displacement control element includes at least a pair of opposing electrodes to utilize an electrostatic force exerted when a voltage is applied between at least said pair of electrodes.

20           22. A display device comprising:  
a display section which includes a large number of picture elements;  
a large number of select lines each of which gives a selection/unselection instruction to said respective picture  
25 elements;  
a large number of signal lines each of which supplies a

picture element signal to said respective picture elements in a selected state; and

a large number of reset lines each of which supplies a reset signal to said respective picture elements in said selected state, wherein each of said picture elements includes:

a first rectifying element and a second rectifying element which are connected in series in a forward direction between two lines selected from one of said select lines, one of said signal lines, and one of said reset lines; and

a load which is connected between remaining one line and a connection point between said first rectifying element and second rectifying element.

23. The display device according to claim 22, wherein  $V_1 \geq V_2$  over an entire operating period provided that:

a line selected from the one of said select lines, the one of said signal lines, and the one of said reset lines, to which a cathode of said first rectifying element is connected, is defined as a first line, and a line selected from the one of said select lines, the one of said signal lines, and the one of said reset lines, to which an anode of said second rectifying element is connected, is defined as a second line; and

$V_1$  represents an electric potential of said first line, and  $V_2$  represents an electric potential of said second line.

24. The display device according to claim 23, wherein a selection period and said unselection period are set for each of said picture elements in said operating period,  $V2 \leq V3 \leq V1$  in said unselection period provided that  $V3$  represents an electric potential of said connection point.

25. The display device according to claim 24, wherein  $V1 < V3$  or  $V2 > V3$  while each of said circuit elements is actually selected in said selection period.

26. The display device according to claim 25, wherein a reset period is set for each of said picture elements in said operating period; and

$V1 < V3$  or  $V2 > V3$  while each of said circuit elements is actually reset in said reset period.

27. A method of driving a display device, said display device comprising:

a display section which includes a large number of picture elements;

a large number of select lines each of which gives a selection/unselection instruction to said picture elements;

a large number of signal lines each of which supplies a picture element signal to said picture elements in a selected state; and

a large number of reset lines each of which supplies a reset signal to said picture elements in said selected

state, each of said picture elements including:

a first rectifying element and a second rectifying element which are connected in series in a forward direction between two lines selected from one of said select lines, one of said signal lines, and one of said reset lines; and

a load which is connected between remaining one line and a connection point between said first rectifying element and said second rectifying element,

wherein a picture element in said selected state is driven so that  $V1 < V3$  or  $V2 > V3$ ; and

a picture element in an unselected state is driven so that  $V2 \leq V3 \leq V1$ ,

provided that a line selected from the one of said select lines, the one of said signal lines, and the one of said reset lines, to which a cathode of said first rectifying element is connected, is defined as a first line, and a line selected from the one of said select lines, the one of said signal lines, and the one of said reset lines, to which an anode of said second rectifying element is connected, is defined as a second line; and

$V1$  represents an electric potential of said first line,  $V2$  represents an electric potential of said second line, and  $V3$  represents an electric potential of said connection point of said picture element.

28. The method of driving said display device according to claim 27, wherein a first voltage and a second



voltage are applied to said load, and each of said picture elements has a light emission characteristic that light is emitted while said second voltage is applied.

5           29. The method of driving said display device according to claim 28, wherein a light emission luminance of said picture element is changed depending on a gradation level by changing an end time point of said second voltage by modulating a pulse width of said picture element signal  
10 supplied to said picture element depending on said gradation level of said picture element.

15           30. The method of driving said display device according to claim 28, wherein a light emission luminance of said picture element is changed depending on a gradation level by changing an amplitude of said second voltage by  
controlling an amplitude of said picture element signal supplied to said picture element depending on said gradation level of said picture element.

20           31. The method of driving said display device according to claim 28, wherein a light emission luminance of said picture element is changed depending on a gradation level by changing a start time point of said second voltage  
25 by modulating a phase of a trigger signal included in said picture element signal supplied to said picture element depending on said gradation level of said picture element.

32. The method of driving said display device according to claim 28, wherein a light emission luminance of said picture element is changed depending on a gradation level by changing an amplitude of said second voltage by modulating a pulse width of said picture element signal supplied to said picture element depending on said gradation level of said picture element.

33. The method of driving said display device according to claim 28, wherein said picture element has a characteristic that a light amount is changed depending on a duty ratio of a period of said first voltage with respect to a predetermined period, and

a light emission luminance of said picture element is changed depending on a gradation level by changing a pulse width of said first voltage by modulating a phase of a trigger signal included in said picture element signal supplied to said picture element depending on said gradation level of said picture element.

34. The method of driving said display device according to claim 28, wherein said picture element has a characteristic that a light amount is changed depending on an accumulated voltage in said first voltage, and

a light emission luminance of said picture element is changed depending on a gradation level by changing an amplitude of said first voltage state by modulating a pulse

width of said picture element signal supplied to said picture element depending on said gradation level of said picture element.

5           35. The method of driving said display device according to claim 28, wherein said picture element has a characteristic that a light amount is changed depending on an accumulated voltage in said first voltage, and

10           a light emission luminance of said picture element is changed depending on a gradation level by changing an amplitude of said first voltage by modulating an amplitude of said picture element signal supplied to said picture element depending on said gradation level of said picture element.

15           36. The method of driving said display device according to claim 28, wherein said first voltage and said second voltage are continuously applied to said load.

20           37. The method of driving said display device according to claim 27, wherein said picture element has a light emission characteristic that a first voltage, a reference voltage, and a second voltage having a polarity opposite to that of said first voltage are applied to said  
25           load, and light is emitted at least while said first voltage is applied and while said second voltage is applied.

38. The method of driving said display device according to claim 37, wherein a light emission luminance of said picture element is changed depending on a gradation level by changing a start time point of said first voltage and a start time point of said second voltage by modulating a phase of a trigger signal included in said picture element signal supplied to said picture element depending on said gradation level of said picture element.

39. The method of driving said display device according to claim 37, wherein a light emission luminance of said picture element is changed depending on a gradation level by changing an amplitude of said first voltage and an amplitude of said second voltage by modulating a pulse width of said picture element signal supplied to said picture element depending on said gradation level of said picture element.

40. The method of driving said display device according to claim 37, wherein a light emission luminance of said picture element is changed depending on a gradation level by changing an amplitude of said first voltage and an amplitude of said second voltage by modulating an amplitude of said picture element signal supplied to said picture element depending on said gradation level of said picture element.

41. A method of driving an array of circuit elements, said array comprising a plurality of circuit elements, a plurality of first lead wires, a plurality of second lead wires, and a plurality of third lead wires, a first group comprising said plurality of first lead wires, a second group comprising said plurality of second lead wires, at least one of said first group and said second group giving a selection/unselection instruction to said circuit elements, and each of said circuit elements including:

a first rectifying element and a second rectifying element which are connected in series in a forward direction respectively between two lead wires selected from one of said first lead wires, one of said second lead wires, and one of said third lead wires; and

a load which is connected between remaining one lead wire and a connection point between said first rectifying element and second rectifying element,

wherein a selected circuit element in a selected state is driven so that  $V1 < V3$  or  $V2 > V3$ ; and

an unselected circuit element in an unselected state is driven so that  $V2 \leq V3 \leq V1$ ,

provided that a lead wire selected from one of said first lead wires, one of said second lead wires, and one of said third lead wires, to which a cathode of said first rectifying element is connected, being defined as a first lead wire, and a lead wire selected from one of said first lead wires, one of said second lead wires, and one of said

third lead wires, to which an anode of said second rectifying element is connected, being defined as a second lead wire; and

V1 represents an electric potential of said first lead wire, V2 represents an electric potential of said second lead wire, and V3 represents an electric potential of said connection point.

42. A method of driving a control device, said control device comprising:

a plurality of circuit elements;

a large number of select lines each of which gives a selection/unselection instruction to said respective circuit elements;

a large number of signal lines each of which supplies a signal to said respective circuit elements in a selected state; and

a large number of reset lines each of which supplies a reset signal to said respective circuit elements in said selected state, wherein each of said circuit elements includes:

a first rectifying element and a second rectifying element which are connected in series in a forward direction respectively between two lines selected from one of said select lines, one of said signal lines, and one of said reset lines; and

a load which is connected between remaining one line

and a connection point between said first rectifying element and second rectifying element,

wherein a selected circuit element in said selected state is driven so that  $V1 < V3$  or  $V2 > V3$ ; and

5 an unselected circuit element in an unselected state is driven so that  $V2 \leq V3 \leq V1$ ,

provided that a line selected from one of said select lines, one of said signal lines, and one of said reset lines, to which a cathode of said first rectifying element is connected, is defined as a first line, and a line  
10 selected from one of said select lines, one of said signal lines, and one of said reset lines, to which an anode of said second rectifying element is connected, is defined as a second line; and

15  $V1$  represents an electric potential of said first line,  $V2$  represents an electric potential of said second line, and  $V3$  represents an electric potential of said connection point:

20 43. A method of driving a control device, said control device comprising a plurality of circuit elements, each of said circuit elements including:

a first lead wire which gives a displacement instruction in a positive direction, a second lead wire  
25 which gives a displacement instruction in a negative direction, a third lead wire which gives a displacement amount instruction, a first rectifying element and a second

rectifying element which are connected in series in a forward direction between said first lead wire and said second lead wire, and a load which is connected between said third lead wire and a connection point between said first  
5 rectifying element and said second rectifying element,

wherein a circuit element, for which said displacement instruction in said positive direction is given, is driven so that  $V1 \geq V2$  and  $V3 > V1$  at a displacement start time point;

10 a circuit element, for which said displacement instruction in said negative direction is given, is driven so that  $V1 \geq V2$  and  $V3 < V2$  at a displacement start time point; and

15 a circuit element, which is in an unselected state, is driven so that  $V2 \leq V3 \leq V1$ ,

provided that  $V1$  represents an electric potential of said first lead wire,  $V2$  represents an electric potential of said second lead wire, and  $V3$  represents an electric potential of said connection point.